

# PATENT SPECIFICATION



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## COMPLETE SPECIFICATION

### Improvements in Cooling fins for Heat exchanger Tube coils

We, BOLINDER'S FABRIKS AKTIEBOLAG, a Swedish Body Corporate, of Kallhall, in the Kingdom of Sweden, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to cooling fins for a heat exchanger tube coil comprising parallel tube sections, the fins having shaped slots corresponding to and receiving said tube sections. An example of such a tube coil is the absorber of continuously operating absorption refrigerating apparatus. As a rule, such an absorber consists of a continuously sloping tube coil having straight tube sections.

In absorber coils of this type, the problem arises to cool the absorber in an effective and cheap manner. In small refrigerating apparatus for use in temperate climate, cooling fins may be omitted, the heat transferring surface of the coil itself being sufficient for cooling the absorber. In larger apparatus and particularly in apparatus operating under difficult conditions, cooling fins must be provided. In any case, an apparatus having a finned absorber is more favourable even in a temperate climate.

Wrought iron finned tubes are not suitable for absorbers, since in this case a plurality of tube sections have to be welded together or difficulties arise in bending the tube to the desired coil shape. The object of the invention is to provide a cooling fin which can be mounted on the coil after the same has been bent into the desired shape, the coil preferably being made of a single tube length.

The invention is characterised by the fact that the fin is U-shaped in cross section and that said slots are provided at the bend of the fin and extend inwards from said bend through a distance greater than the diameter

of the tube so that said bend projects beyond the tube section, a cotter being inserted between the inner face of the bend and the outer surface of each of said tube sections to secure the fin to the tube coil.

The invention is hereinafter described with reference to the accompanying drawings. Fig. 1 is a perspective fragmentary view of an absorber coil and a cooling fin devised in accordance with the invention. Fig. 2 is a top view of two fins. Fig. 3 illustrates a fin and tube sections as viewed longitudinally of the tube sections, and Fig. 4 illustrates a slightly modified embodiment.

The absorber coil comprises a number of parallel straight tube sections 1. According to the embodiment illustrated, the cooling fins mounted on said tube sections consist of U-shaped strips 2, for instance of aluminium. Each fin consequently has two fin portions, the bend of the U having U-shaped slots 3 corresponding to the tube sections 1, which slots extend inwards from the bend of the U through a distance greater than the diameter of the tube so that said bend projects beyond the tube sections 1, and at one end are adapted to receive the tube sections. The fins are slid laterally onto the parallel tube sections and are then secured thereto by means of cylindrical cotters 4 entered between the bends of the strips and the tube sections. The cotters are suitably pointed at one end to facilitate the entrance into the various bends. By dimensioning the diameter of the cotters and the sizes of the cooling parts in a suitable manner it is possible to have the cotters resiliently contact the tube sections 1 so as to provide for an effective contact between the tube sections and the bottoms of the slots 3 of the fins. A certain amount of heat will be transferred also through the contact faces of the cotters. The bottoms of the slots 3 may be provided with saddle-shaped flanges 5 for increasing the area of contact. The resi-

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liency of the cotters and of the material of the fins prevents the fins from being shaken off. Consequently, the thermal contact will be maintained even if the fins are subjected to shocks, which otherwise is a difficult problem with aluminium fins.

The cotters need not be cylindrical. Fig. 4 shows a slightly conical coter 4a having a diameter of about one sixteenth of an inch. In this case, there is no need for an accurate fit, since the coter can be driven home and will secure, under all reasonable conditions, an effective contact between the fin and the tube.

15 What we claim is:—

1. A cooling fin for a heat exchanger tube coil comprising parallel tube sections, the fin having U-shaped slots corresponding to and receiving said tube sections, characterised in that said slots are provided at the bend

in that the fin is U-shaped in cross-section of the fin and extend inwards from said bend through a distance greater than the diameter of the tube so that said bend projects beyond the tube section, a coter being inserted between the inner face of the bend and the outer surface of each of said tube sections to secure the fin to the tube coil.

2. A cooling fin as claimed in Claim 1. characterised in that the coter is slightly conical.

3. A cooling fin for a tube coil, substantially as herein described with reference to and as illustrated in Figs. 1 to 3 or Fig. 4 of the accompanying drawings.

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1 SHEET

COMPLETE SPECIFICATION

This drawing is a reproduction of  
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FIG.1

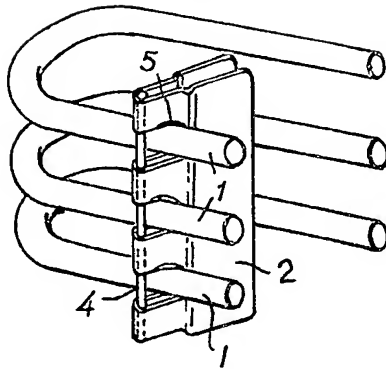


FIG.2

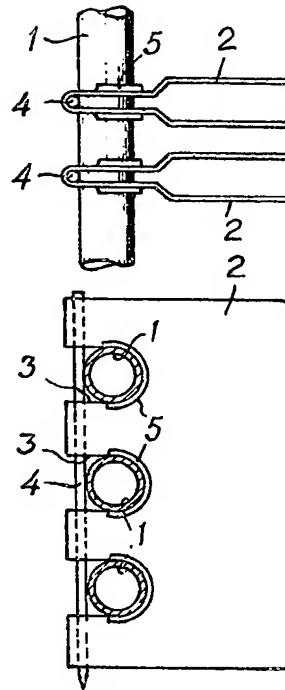


FIG.4

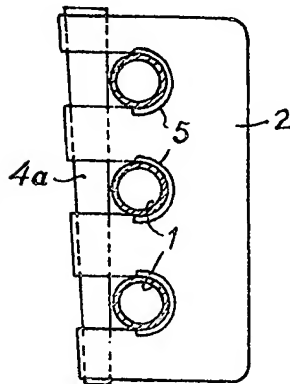


FIG.3